**Name: Date: Block**

**Congratulations!** You are about to be the proud parents of a baby ReeBop! Follow the directions below to produce the newest member of the ReeBop population.

**Lab Protocol:**

1. Take the mother and father’s chromosomes out of the envelope. The mother’s chromosomes are pink or red, the father’s chromosomes are blue.

2. With your lab partner you must decide who will be responsible for the mother’s chromosomes and who will be responsible for the father’s chromosomes.

3. Turn the chromosomes so that the letters are **face down**.

4. Each partner should sort her/his chromosomes according to length. **Remember:** homologous chromosomes are the same length!

5. Randomly choose **one** chromosome of **each** length from the mother’s set ***and*** the father’s set. These are your baby’s chromosomes. Put them in a pile and place the remaining chromosomes back in the envelope.

6. Be sure your baby has a set of **14** chromosomes (7 from mom and 7 from dad)

7. Turn over the baby’s chromosomes so that the letters are face up and pair the chromosomes together *according to length*.

8. Write down on your chart which pairs of letters are matched up on your baby Reebop’s chromosomes. This is known as the **genotype** of the baby Reebop.

9. Use the key to decode and construct what your baby Reebop looks like. The observable characteristics of your baby Reebop are known as its phenotype.

10. Place your baby Reebop in the designated area and compare it to your classmates’ baby Reebop siblings.

**Code**

|  |  |  |  |
| --- | --- | --- | --- |
| Genotype | Phenotype | Genotype | Phenotype |
| AA | 1 antenna | **MM** | 1 green hump |
| Aa | 2 antenna | **Mm** | 2 green humps |
| aa | No antenna | **mm** | 3 green humps |
| QQ | Pink nose | **TT or Tt** | Curly tail |
| Qq | Orange nose | **tt** | Straight tail |
| qq | Yellow nose | **EE or Ee** | 2 eyes |
| LL or Ll | Blue legs | **ee** | 3 eyes |
| ll | Red legs | **DD or Dd** | 3 body segments |
|  |  | **dd** | 2 body segments |

**Materials to construct your baby Reebop**

|  |  |
| --- | --- |
| Material | Body Part |
| Large white marshmallows | Body segments |
| Regular toothpicks | Used to attach pieces together |
| Nails | Antenna |
| Mini-marshmallows | Humps and noses |
| Pipe cleaners | Tails |
| Thumbtacks | Eyes |
| Colored toothpicks | Legs |

**My Baby ReeBop**

|  |  |
| --- | --- |
| **Genotype**  | **Phenotype** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

For Your Reference: The General Anatomy of a ReeBop



**Analysis Questions**

1. Are any of the two baby Reebops exactly alike? Why?

2. Why do you think they are mostly (if not completely) different looking?

3. When you were picking up one chromosome from each same length pair of chromosomes from both the mother and the father, what process were you simulating? (Think about it. I have faith you’ll figure it out.) ☺

4. What do you call the male haploid cell? The female haploid cell?

5. What is the diploid number for this Reebop? The haploid number?

6. Assume that the green humps are used for storing water. Predict which Reebop would have a better chance for surviving a drought. Why?

7. In what part of meiosis did these Reebops “inherit” the number of green humps?